



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,448	05/16/2005	Luke Ward	42965-P051US	4683
43167	7590	10/14/2008		
WINSTEAD P.C. PO BOX 50784 DALLAS, TX 75201			EXAMINER BURKHART, ELIZABETH A	
			ART UNIT	PAPER NUMBER
			1792	
			MAIL DATE	DELIVERY MODE
			10/14/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/516,448	<b>Applicant(s)</b> WARD, LUKE	
	<b>Examiner</b> ELIZABETH A. BURKHART	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-12 and 14-35 is/are pending in the application.
- 4a) Of the above claim(s) 32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-35 is/are allowed.
- 6) ☒ Claim(s) 1,3-12, 14, 15 and 17-31 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1, 3-12, and 14-35 are pending in the application. Amended claim 1, cancelled claims 2 and 13, and new claims 33-35 have been noted. Claim 32 has been withdrawn as being drawn to a non-elected invention.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/18/2008 has been entered.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 was amended to include the limitation of "said substrate being located substantially inside the exciting medium during coating deposition". Thus, the limitation in claim 14 of "the substrate...is located outside of the pulsed exciting medium during coating deposition" is unclear since claim 14 depends from claim 1. In other words, it is unclear how the substrate could be in two places at once (i.e. inside and outside the exciting medium).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 10, 12, 15, 17-21, 24, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin et al. (US 2004/0022945) in view of Badyal et al. ('950).

Goodwin discloses a method for depositing a coating on a substrate by introducing an atomized coating forming material into an atmospheric pressure plasma discharge prior to being deposited onto a substrate ([0006]). The plasma discharge retains the chemical properties of the atomized coating forming material ([0019]). The atomizer is connected to a syringe pump for supplying coating forming monomer to said atomizer ([0023]). The plasma discharge is created by any conventional means of generating a glow discharge, which is a flux of ionized particles ([0010]). The substrate is located inside the plasma discharge during coating deposition ([0009]). The substrate may be any material (e.g. metal, ceramic, polymer, woven or non-woven fibers, natural fibers, synthetic fibers, cellulosic material and powder) ([0017]). The coating forming monomer material may be solid, liquid, gaseous, organic or inorganic or mixtures thereof ([0012]). The atomizer may be an ultrasonic nozzle ([0023]) wherein the coating material is a liquid or liquid/solid slurry ([0006]). A plurality of atomizers may be used ([0011]). Goodwin also discloses a method of producing a multilayer coating on a

Art Unit: 1792

substrate by exposing the substrate to the excited coating forming material repeatedly [0020] and that the coating may be post-treated or pre-treated by exposure to an exciting medium [0014].

Goodwin does not disclose that the plasma discharge is pulsed.

Badyal discloses a method of coating a surface with a polymer layer using a pulsed plasma discharge in order to achieve a greater level of structural retention (Col. 4, lines 49-56).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to use the method of Goodwin wherein the plasma discharge is pulsed as suggested by Badyal in order to achieve a greater level of structural retention.

Regarding Claims 1 and 27, the plasma sources of Goodwin would serve to chemically activate the coating forming material.

Regarding Claim 26, Goodwin discloses the same substrate material and the same coating forming material, thus the coated substrate would be subject to derivatization.

Regarding Claim 29, since the liquid is a monomer, the precursor species must be monomeric ions.

Regarding Claim 31, since the coating material may be a liquid rather than a suspension of particles within a carrier liquid, the plasma discharge would contain the coating material in the absence of other materials.

Art Unit: 1792

Thus, claims 1, 3, 4, 10, 12, 15, 17-21, 24, and 26-31 would have been obvious within the meaning of 35 USC 103 over the combined teachings of Goodwin and Badyal.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1 and 5 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 14 of copending Application No. 10/514661 in view of Goodwin et al (US 2004/0022945).

Application No. 10/514661 does not disclose in the aforementioned claims that the substrate is located inside the exciting medium during coating deposition.

Goodwin discloses a similar coating process wherein the substrate is placed within the exciting medium, but the size of the substrate is limited to the volume of the

plasma region [0017]. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant that the substrate of Application No. 10/514661 may alternatively be placed within the exciting medium as suggested by Goodwin as long as it is of an appropriate size.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

6. Claims 6-11, 14, and 20-23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 5-8, 11, and 15-21 of copending Application No. 10/514661 in view of Goodwin et al (US 2004/022945) as applied above and further in view of Badyal et al. ('950).

Goodwin and the aforementioned claims of Application No. 10/514661 do not disclose that the exciting medium is pulsed.

Badyal et al. ('950) is relied upon as discussed in the 35 USC 103 rejections above. It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to use the claimed method of Application No. 10/514661 wherein the exciting medium is pulsed as suggested by Badyal et al. ('950) in order to achieve a greater level of structural retention.

This is a provisional obviousness-type double patenting rejection.

***Allowable Subject Matter***

7. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 1792

8. Claims 33-35 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The relevant prior art does not disclose forming a multilayer coating wherein the nature of the exciting medium is changed during the coating formation (i.e. pulsed plasma to pulsed UV). The relevant prior art states that for a multilayer coating multiple plasma chambers may be used, but not the use of a plasma chamber followed by a UV or electron beam chamber.

### ***Response to Arguments***

9. The rejection of claims 1, 3-5, 10, 11, 14, and 25 over Gitzhofer and Heinecke has been withdrawn since neither discloses the new limitations in amended claim 1. The rejection of claims 6, 7, and 22 over Gitzhofer, Heinecke, and Wang has been withdrawn for the same reasons. Thus, Applicant's arguments concerning Gitzhofer, Heinecke, and Wang are now moot.

10. Applicant's arguments filed 9/18/2008 have been fully considered but they are not persuasive. Applicant argues that a person of ordinary skill would not look to the vacuum method of Badyal from the atmospheric pressure method of Goodwin to obtain a greater level of structural retention. The examiner disagrees. Badyal teaches that the plasma may be at atmospheric or sub-atmospheric pressure (Col. 3, lines 1-2). Thus, one of ordinary skill would have reasonably expected the pulsed plasma of Badyal to be effective in the atmospheric pressure plasma process of Goodwin in addition to vacuum plasma processes. It is noted that Goodwin discloses that the chemical properties are substantially retained [0019], however one of ordinary skill would have been motivated



to use the pulsed plasma of Badyal to improve the structural retention to a greater extent.

11. Applicant argues that the statement that the precursor species must be monomeric ions is incorrect because the precursor can also include oligomers. Since Goodwin teaches the same coating materials as the present invention and these materials are then atomized and subject to plasma activation just as they are in the present invention, the precursor species of Goodwin would also be monomeric or oligomeric radicals or ions.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH A. BURKHART whose telephone number is (571)272-6647. The examiner can normally be reached on M-Th 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Art Unit: 1792

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elizabeth A Burkhardt/  
Examiner, Art Unit 1792

/Timothy H Meeks/  
Supervisory Patent Examiner, Art Unit 1792